

**ABSTRACT**

Described are systems and methods for determining the gross weight of an aircraft. A flight regime is determined based on one or more inputs. A neural net is  
5 selected based on a flight regime. The neural net inputs may include derived values. A first estimate of the gross weight is produced by the selected neural net. The first estimate is used, along with other inputs, with a Kalman filter to produce a final gross weight estimate. The Kalman filter blends or fuses together its inputs to produce the final gross weight estimate.

10